

FIG. 1

5'	9				18				27				36				45				54			
	CAG	CCC	CGG	GGC	GCC	GGC	CGC	GCG	CAG	CCT	CGC	TAT	CCC	ACC	CAG	GCT	CCG	GGC						
	63				72				81				90				99				108			
	TTC	CAG	GAG	GGT	CGC	GGA	GCC	CCA	AGC	CAT	GAC	TAA	GGA	GCC	CAT	TTG	ATA	GCA						
	117				126				135				144				153				162			
	GAG	GTG	GCG	CGC	AGC	CCG	GCG	AGC	CGA	TGA	CGG	ACC	CCT	TCT	TCC	TGC	CTT	CAA						
	171				180				189				198				207				216			
	TGC	CTC	AGC	GGA	AGA	TCC	CCA	AGG	GCT	GGA	GCG	AGG	AGC	GCT	GCC	GCT	GGA	CAT						
	225				234				243				252				261				270			
	CCT	CCC	GGG	GAG	GCT	GCT	CCG	ACC	TGC	TGC	GCG	GCG	CGT	CTG	AGA	CTG	GGG	ACT						
	279				288				297				306				315				324			
	GAG	CCA	CTC	CGC	CGC	CGC	CGG	CGC	CGC	CGC	CGC	CGC	CCG	CTC	CGT	CGC	TGC	CGT						
	333				342				351				360				369				378			
	CGG	TCT	GGA	CTG	GCC	CCC	ACC	TCG	CTG	CGC	CCT	CTC	CCC	GGC	CCC	GGC	CCC	GGC						
	387				396				405				414				423				432			
	TCG	GGG	CGT	CCC	GGG	GCT	CGC	CCT	GCG	ACC	GCC	GCC	TCC	CGC	GCG	CCG	CGT	CCT						
	441				450				459				468				477				486			
	CCC	GAC	CCC	GCG	GCG	GCG	ACG	ATG	CCC	GGG	AGG	AGG	GTC	CTG	ACG	GCG	GCG	GCG						
	495				504				513				522				531				540			
	CGG	ATG	GTG	GCG	GCC	GGC	GCC	CGG	GTG	TGA	TGC	GAG	CGT	CAC	GGT	GGG	GAT	GCT						
	549				558				567				576				585				594			
	GCT	GGC	TGC	GCG	GCG	CTG	AGG	GCC	AGC	GAG	AGC	GAG	AGC	CCG	CCC	GGG	GCG	GAG						
	603				612				621				630				639				648			
	GAC	GGA	CTC	ATC	CGG	ATC	TGG	CTG	CAG	CGT	GGG	CTC	GGA	GCT	CCC	CCT	TCC	TCT						
	657				666				675				684				693				702			
	CGG	TCT	CCC	TCT	CGG	CCC	CCC	TTT	ATT	TCC	TTC	TTG	CTT	TGC	GTC	TTT	AAC	ACC						
	711				720				729				738				747				756			
	TCT	CGA	CCC	TGT	CCT	CCC	CCC	GCC	ACT	GGA	AGT	CTT	CCC	GTC	TCT	AAA	TGG	AAT						
	765				774				783				792				801				810			
	TAG	TGG	AGC	CCG	GAG	CCT	CTG	GTG	TAA	CGC	ACA	GAC	ATG	ATC	CAT	GGG	CGC	AGC						
													M	I	H	G	R	S						
	819				828				837				846				855				864			
	GTG	CTT	CAC	ATT	GTA	GCA	AGT	TTA	ATC	ATC	CTC	CAT	TTG	TCT	GGG	GCA	ACC	AAG						
	V	L	H	I	V	A	S	L	I	I	L	H	L	S	G	A	T	K						
	873				882				891				900				909				918			
	AAA	GGA	ACA	GAA	AAG	CAA	ACC	ACC	TCA	GAA	ACA	CAG	AAG	TCA	GTG	CAG	TGT	GGA						
	K	G	T	E	K	Q	T	T	S	E	T	Q	K	S	V	Q	C	G						

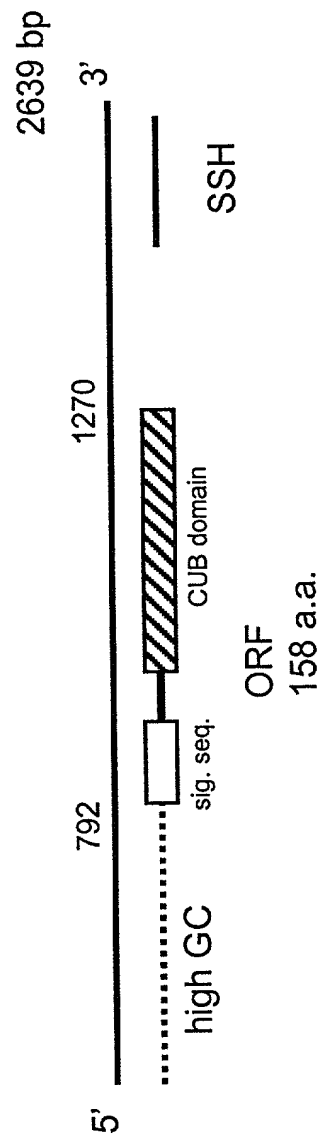
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1791	1800	1809	1818	1827	1836
ACA GCC AAA TAC TCA TTT ACA AGG TCT TGC AGA AAT TGT GTG CAA TTA TCA AAT					
---					
1845	1854	1863	1872	1881	1890
TAT GCA ATC TGT ATC AAT TTT CCT TTT AAC TCG CTA GAA TTA AAA AGA TCC TGT					
---					
1899	1908	1917	1926	1935	1944
GTT GTT GCC TGG CCC ACT TGA TTA AGA GTT ACC ATT CAT TAC AAT AAA AAT AGG					
---					
1953	1962	1971	1980	1989	1998
TTA TCA CAT TTT TTC ACT GCA AGA ACA CTA CAT GCA TTA ATT TAA ATG GAA AAA					
---					
2007	2016	2025	2034	2043	2052
TGA TTC AAA TTA CAT AAA GCC CAT TTT TTA TAT AGT TTG TTT TCA GTT TGT ATG					
---					
2061	2070	2079	2088	2097	2106
TAT TGT TTT ATT TAA GTT AGG CAA TAG CAT AAT TTC AAA TAT ATG TAA AGT TGG					
---					
2115	2124	2133	2142	2151	2160
TTG AAG TTT GTA TTC CAT GTT AAA GAA GTA ACA TCT AAA TAC AGC TTT GAT ACT					
---					
2169	2178	2187	2196	2205	2214
CAG TTA AAA AAC TAA AAT TTT AAA AAT TAT TAA TAT AAG TTT AAT GAT GAC TTT					
---					
2223	2232	2241	2250	2259	2268
CAT TAT GAC ATC ATG GGG TAT GTT AAA TCA AGT ATT TAC TGT AGC ATA TAT ATT					
---					
2277	2286	2295	2304	2313	2322
AGC TTT AAG CAT TAG GAA TGT TTT TAA TAA TAT CAC TAA AGG ATT GTG GTT TTA					
---					
2331	2340	2349	2358	2367	2376
ATT ATG CTT TGC TGA TAA TGG ATT ACT CAC AGA AAT CAT GGG TAT TTC ATG TGC					
---					
2385	2394	2403	2412	2421	2430
TAC AGT CGA ACT AAT TTG AAG TAT TCC CAA AAG GTA CAA ATG TTA GCT TAA TTT					
---					
2439	2448	2457	2466	2475	2484
GTT TGT TCA GAT TAT TAG TGC TAG AGT TGT AAA TGG AAA GGT AGG TAT TTT TTT					
---					
2493	2502	2511	2520	2529	2538
CTT AAC TGA TAA TTT TGA ATA TAA CCT GTA CCT AGA GAC AGT GAC ATA CGG CAT					
---					
2547	2556	2565	2574	2583	2592
GTT CTA GGT TTC ATA AGT TAT ATT TTC ATT CTG GGT TTG GTG ATC ATG AAA ATA					
---					
2601	2610	2619	2628	2637	
ATG TCT TGG ATT TAA AAT TGT GGT TTC ACA AAA AAA AAA AAA AAA AA 3'					
---					

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FIG. 2



**GC content:**

5' non-coding	72%
coding	42%
3' non-coding	30%

# FIG. 3

## A

43.5% identity in 115 residues overlap

```

BPC-1      33 IFTSPNYPSPKYPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSW-----ECKFDHIEVR
CUB domain  75 IFTSPNFPDRYPPNIDCVRIHSRQHDVVVKFHHVFHISTYDKIDAGEECPNDFIEFR
          ***** * *** * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      86 DGPFGRFSGPIIGRFGCGQONPP-VIKSSGRFLWIKFFADGELESMGFSARYNFTPGK
CUB domain 135 DGRYGFSPLIARFCGDRMPKREIRAVSGFLWIRFRSDSMLEYQGFSAEYAIVPSK
          ** * * * * * * * * * * * * * * * * * * * * * * * * * *

```

## B

35.3% identity in 102 residues overlap in CUB domain 1 of BMP-1

```

BPC-1      130 GIFTSPNYPSPKYPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSWECKFDHIEVRDGPFGF
BMP-1      336 GNFSPEYPPNGYSAHMCVWRISVTPGEEKIILNFTSM-DLYRSRLCWYDYVEVRDGFWRK
          * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      190 SPIIGRFGCGQONPPVIKSSGRFLWIKFFADGELESMGFSARY
BMP-1      395 VVVRGRFCGKLEPIVSTDSRLWVEFRSSSNWVGKGFFAVY
          ***** * * * * * * * * * * * * * * * *

```

39.4% identity in 104 residues overlap in CUB domain 2 of BMP-1

```

BPC-1      128 EGGIFTSPNYPSPKYPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSWECKFDHIEVRDGPFGF
BMP-1      447 DNGHIQSPNYPDDYRPSKVCIWRIQVSEGFHVGLTF-QSFEIERHDSYDYLEVRDGHG
          * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      188 GFSPPIIGRFGCGQONPPVIKSSGRFLWIKFFADGELESMGFSARY
BMP-1      506 ESSNLIGRYCGYENPDDIKSTSSRLWLKFSVSDGSINKAGFAVNF
          * * * * * * * * * * * * * * * * * * * *

```

36.3% identity in 102 residues overlap in CUB domain 3 of BMP-1

```

BPC-1      130 GIFTSPNYPSPKYPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSWECKFDHIEVRDGPFGF
BMP-1      605 GSITSPGWPKYPPNKNCIWQLVAPTQYRISLQDFD-FETEGNDVCKYDFVEVRSGLTAD
          * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      190 SPIIGRFGCGQONPPVIKSSGRFLWIKFFADGELESMGFSARY
BMP-1      664 SKLHGKFCGSEKPEVITSQYNNMRVEFKSDNTVSKKGFKAHF
          * * * * * * * * * * * * * * * * * * * *

```

37.9% identity in 103 residues overlap in CUB domain 4 of BMP-1

```

BPC-1      130 GIFTSPNYPSPKYPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSWECKFDHIEVRDGPFGF
BMP-1      761 GTITSPNWPDKYPSKKECTWAISSTPGHRVKLTFVEM-DIESQPECAYDHLEVPDGRDAK
          * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      190 SPIIGRFGCGQONPPVIKSSGRFLWIKFFADGELESMGFSARYN
BMP-1      820 APVLGRFCGSKKPEPVLATGNRMFLRFYSDNSVQRKGQASHS
          * * * * * * * * * * * * * * * * * * * *

```

32.3% identity in 96 residues overlap in CUB domain 5 of BMP-1

```

BPC-1      139 SKYPPDPRECIYIIIEAAPRQCIELYFDEKYSIEPSWECKFDHIEVRDGPFGFSPIIGRFGC
BMP-1      887 NNYPGGVDCEWVIVAEEGYGVELVF-QTFEVEEETDCGYDYIELFDGYDSTAPRLGRYCG
          ** * * * * * * * * * * * * * * * * * * * * * * * * * *
BPC-1      199 QQNPPVIKSSGRFLWIKFFADGELESMGFSARYNFT
BMP-1      946 SGPPEEVYSAGDSVLVKFHSDDTISKKGFLHRYTST
          * * * * * * * * * * * * * * * *

```

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FIG. 4

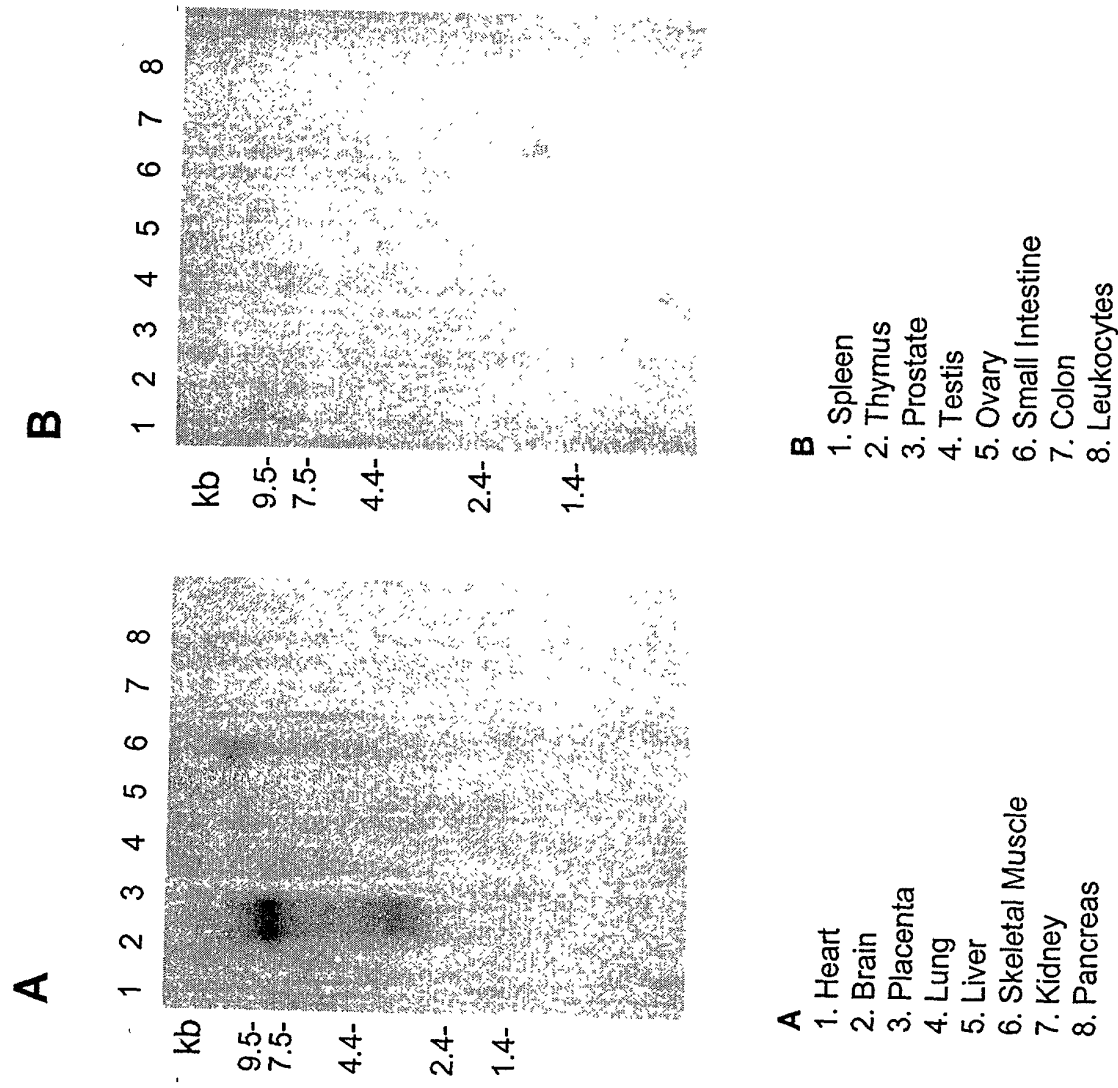
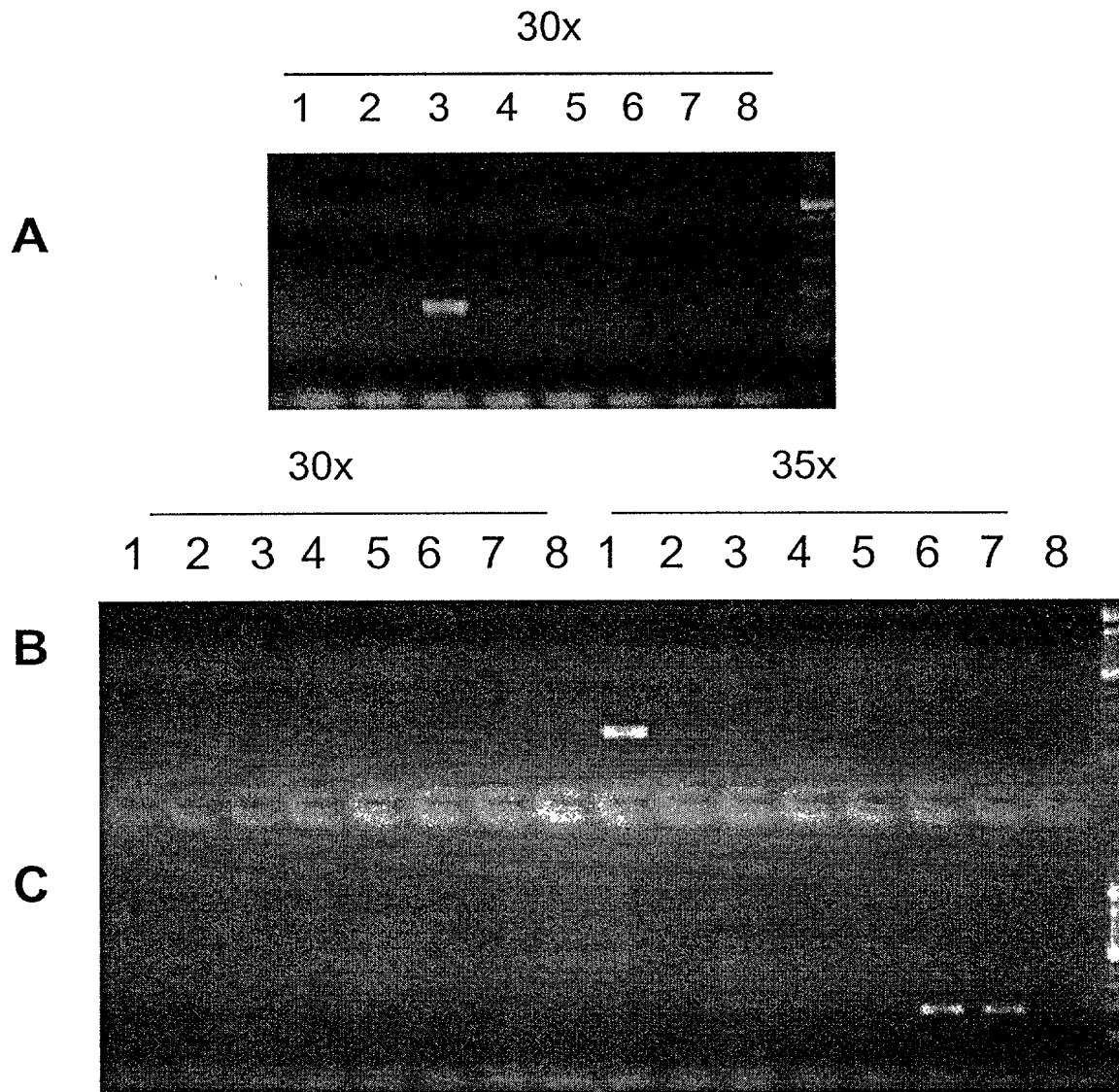


FIG. 5



**Panels:**

**A**

1. Brain
2. Prostate
3. LAPC-4 AD
4. LAPC-4 AI
5. LAPC-9 AD
6. HeLa
7. Murine cDNA
8. Neg. control

**B**

1. Brain
2. Heart
3. Kidney
4. Liver
5. Lung
6. Pancreas
7. Placenta
8. Skeletal Muscle

**C**

1. Colon
2. Ovary
3. Leukocytes
4. Prostate
5. Small Intestine
6. Spleen
7. Testis
8. Thymus

FIG. 6

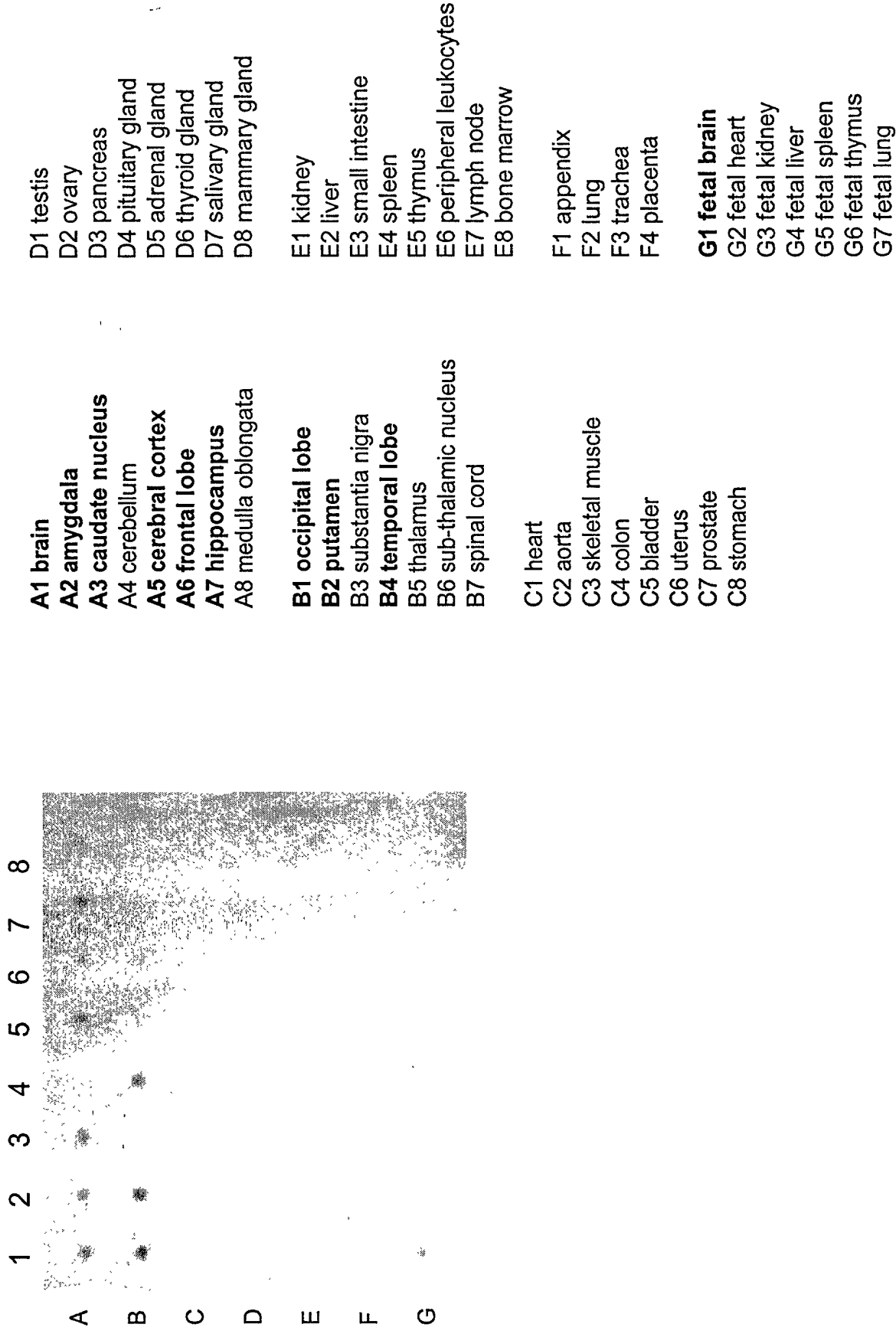
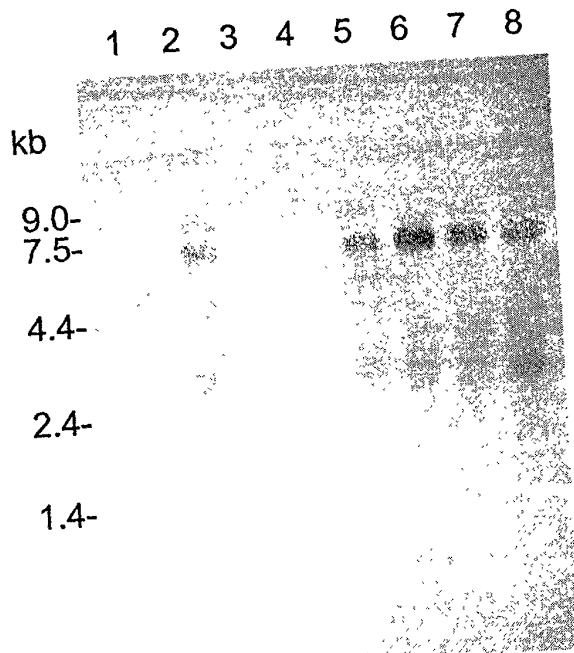




FIG. 7

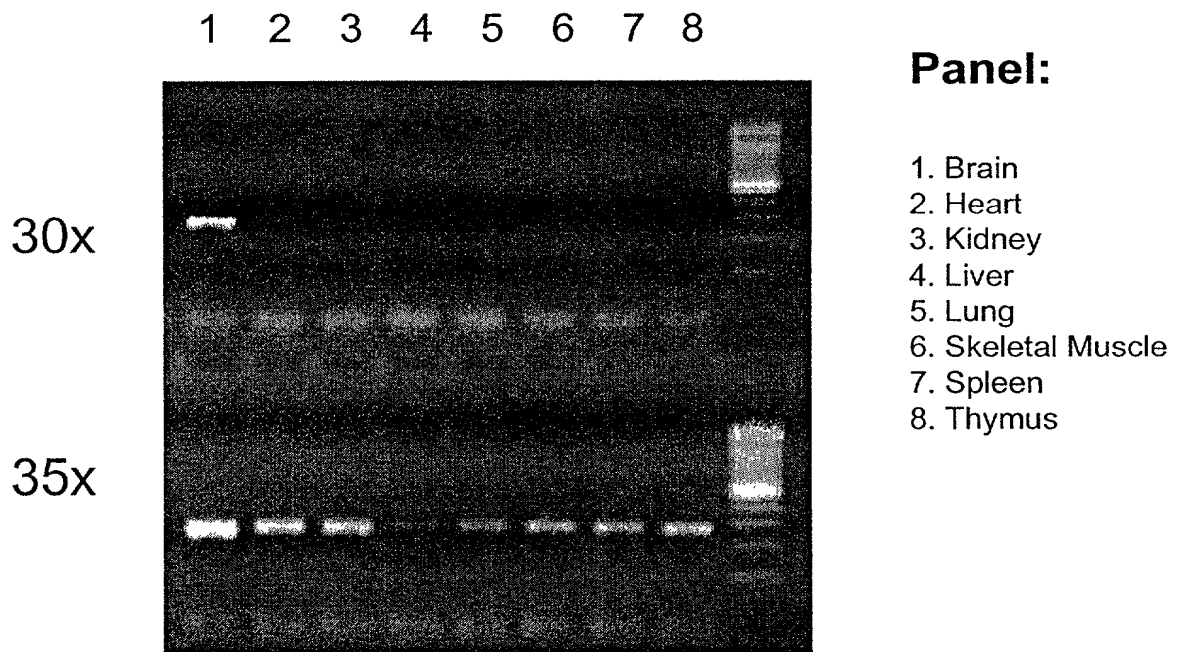


**Lanes:**

1. Cerebellum
2. Cerebral Cortex
3. Medulla
4. Spinal Cord
5. Occipital Lobe
6. Frontal Lobe
7. Temporal Lobe
8. Putamen

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FIG. 8



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FIG. 9

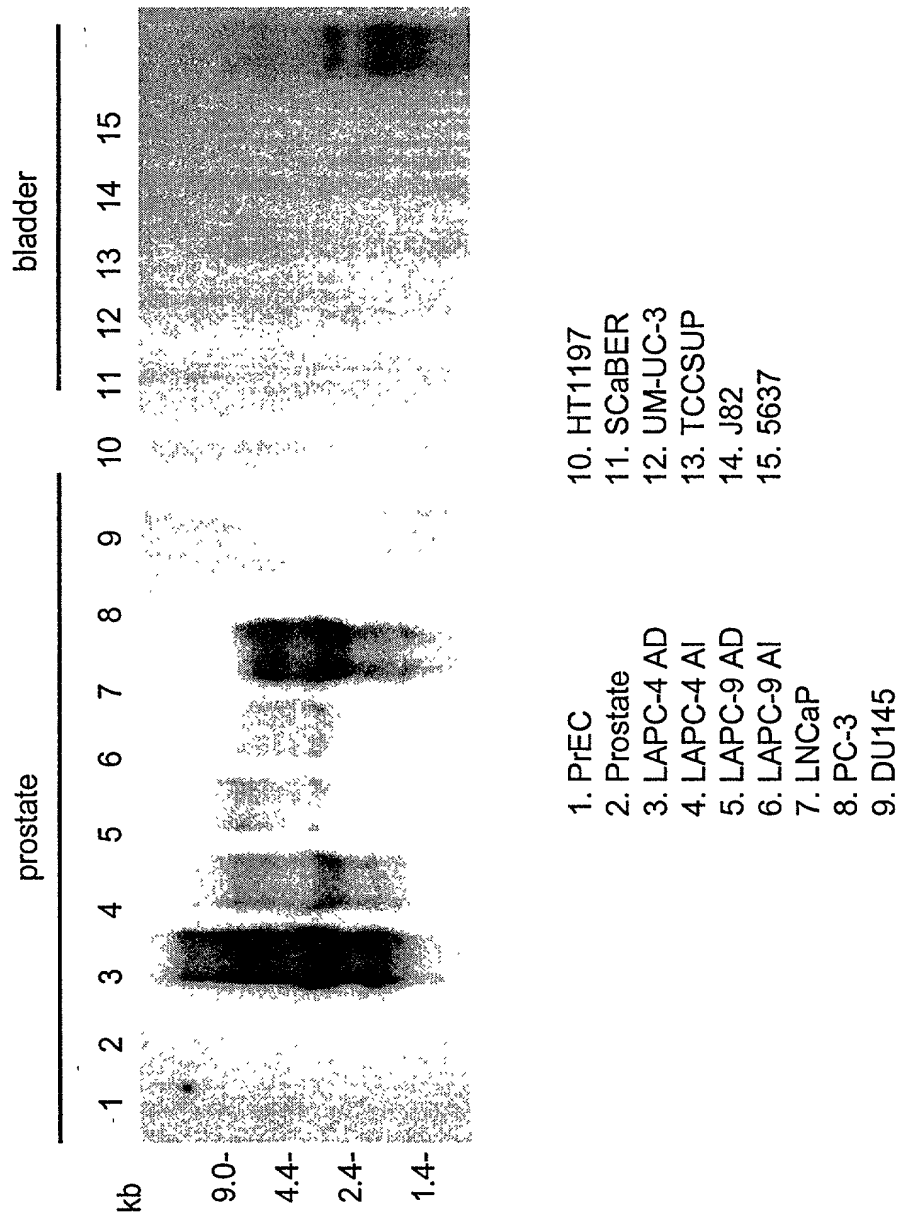


FIG. 10

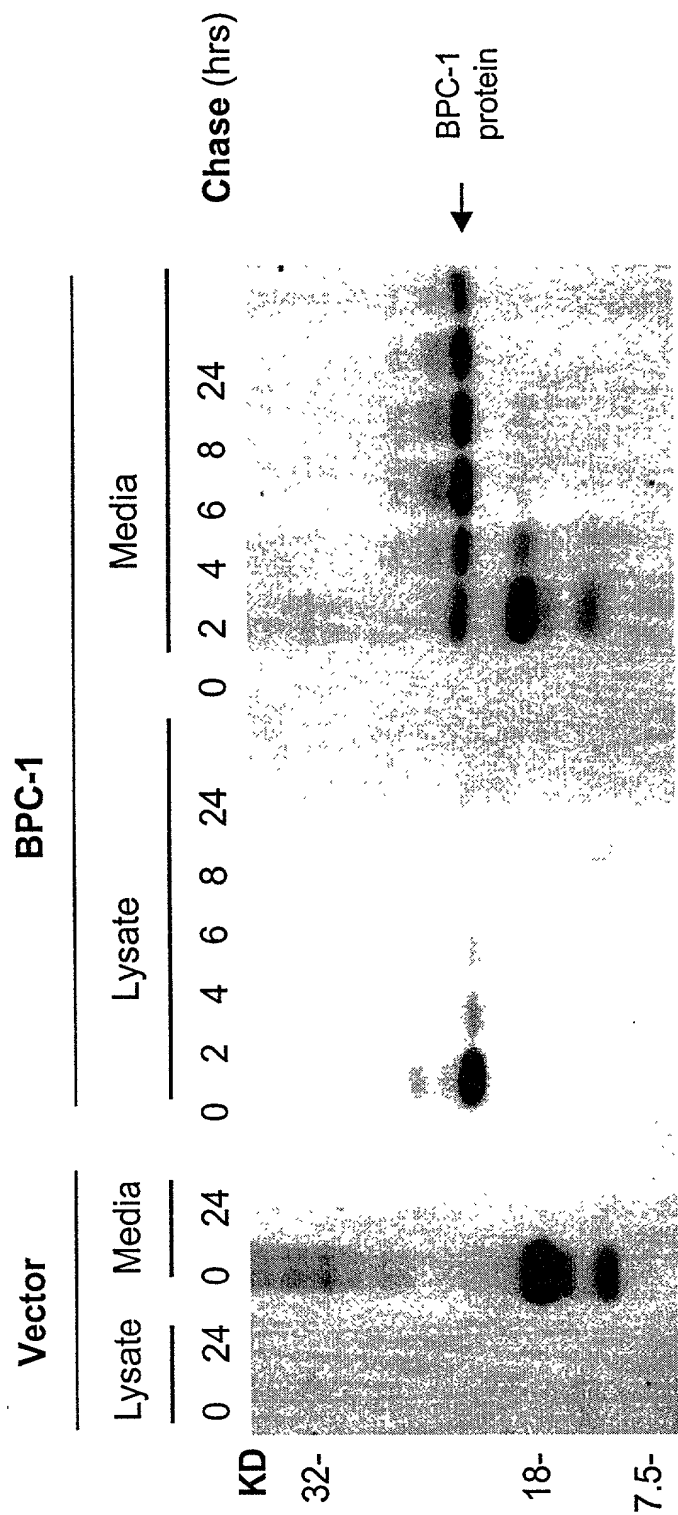
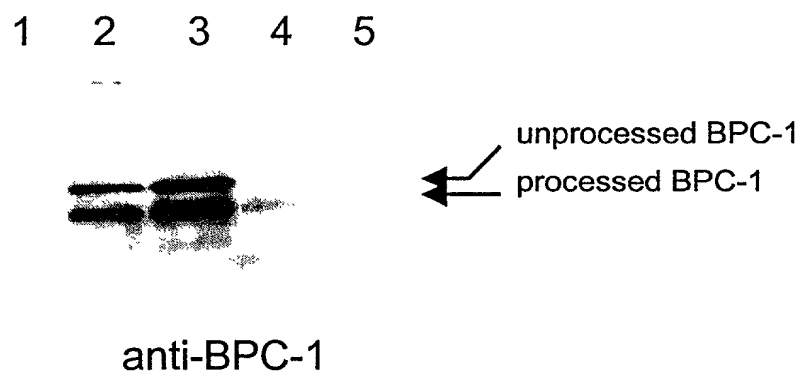


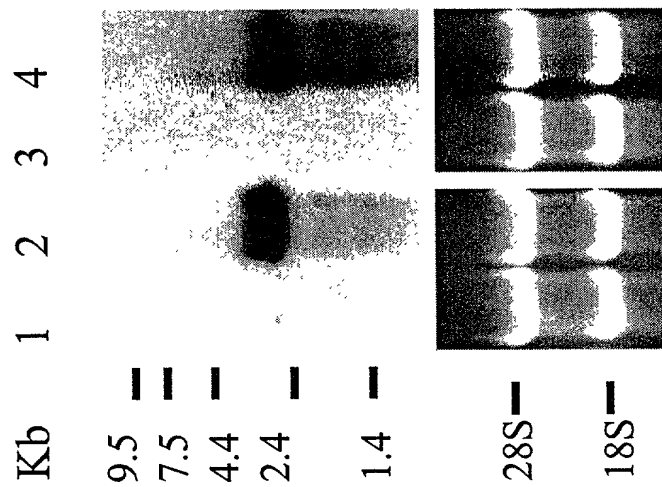
FIG. 11



Lanes:

1. HighFive cell extract- uninfected
2. HighFive cell extract- infected with BPC-1 virus
3. HighFive cell extract - infected with BPC-1 virus
4. HighFive cell media - infected with BPC-1 virus
5. HighFive cell media - infected with BPC-1 virus

FIG. 12



1. PC3/neo
2. PC3/BPC-1
3. 3T3CL7/neo, acute infection
4. 3T3CL7/BPC-1, acute infection

FIG. 13

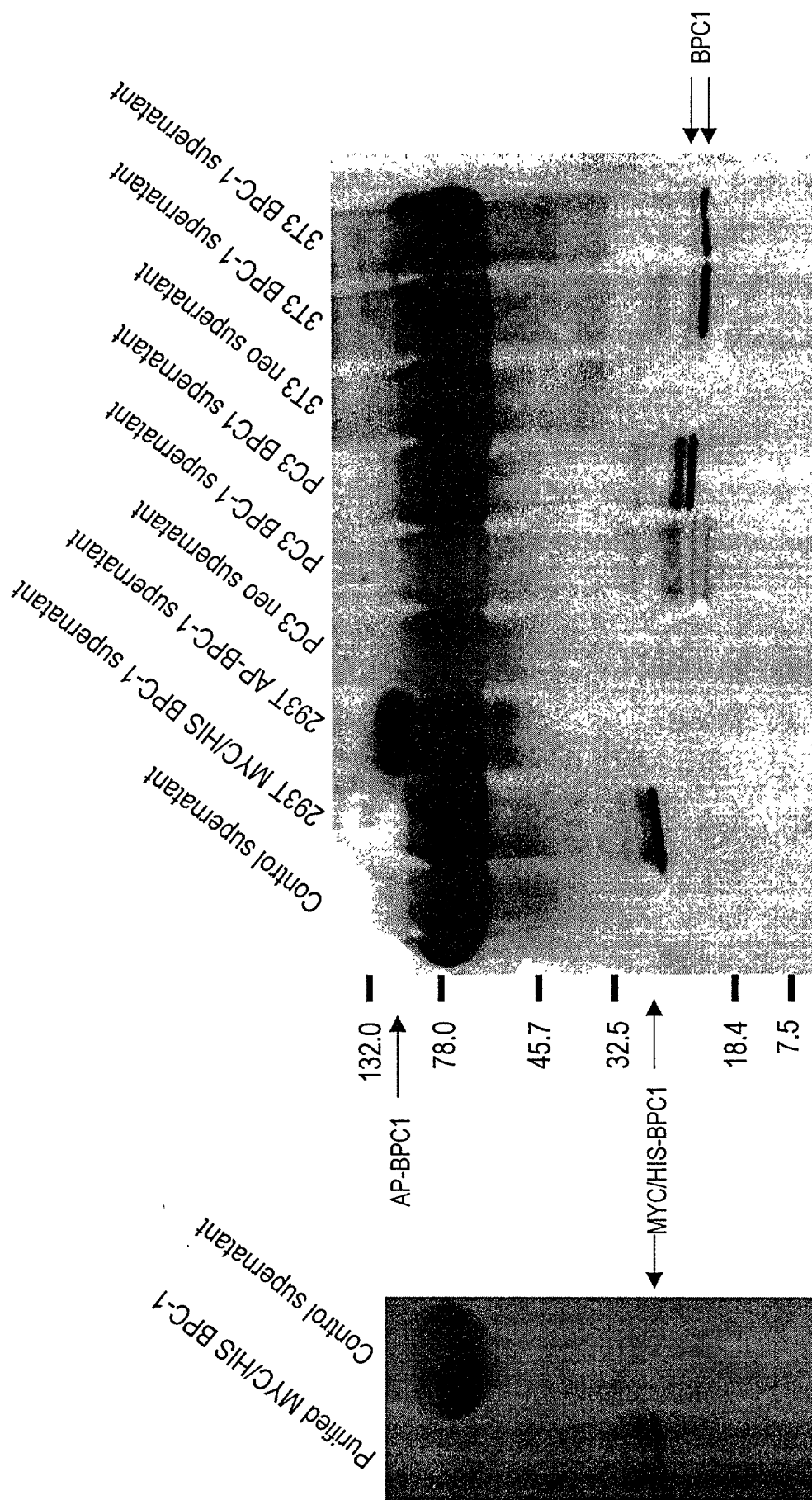


FIG. 14

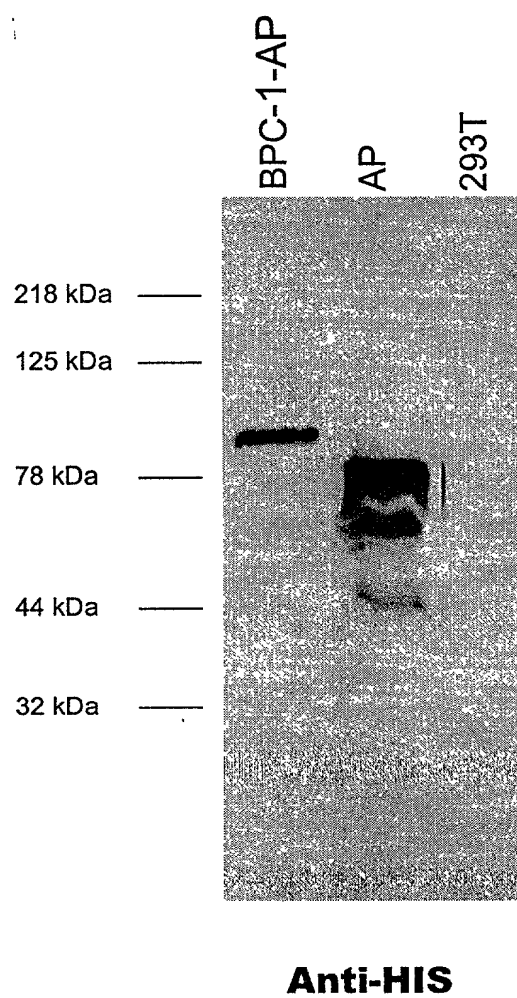
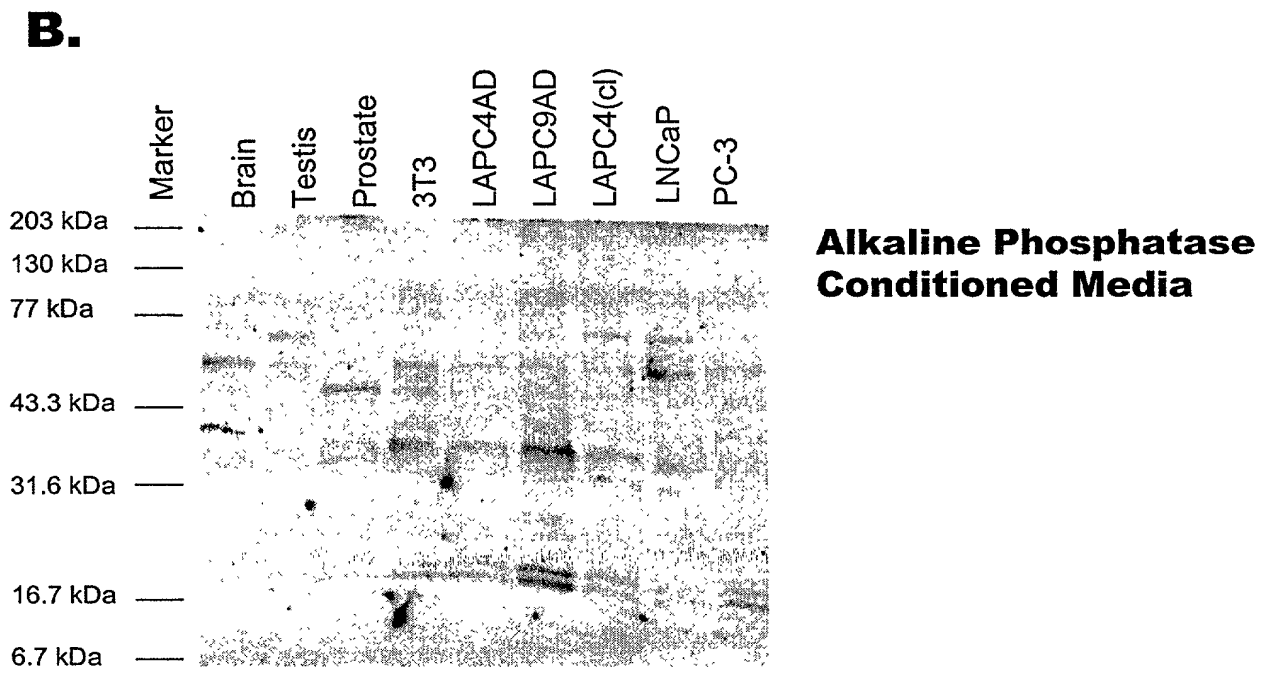
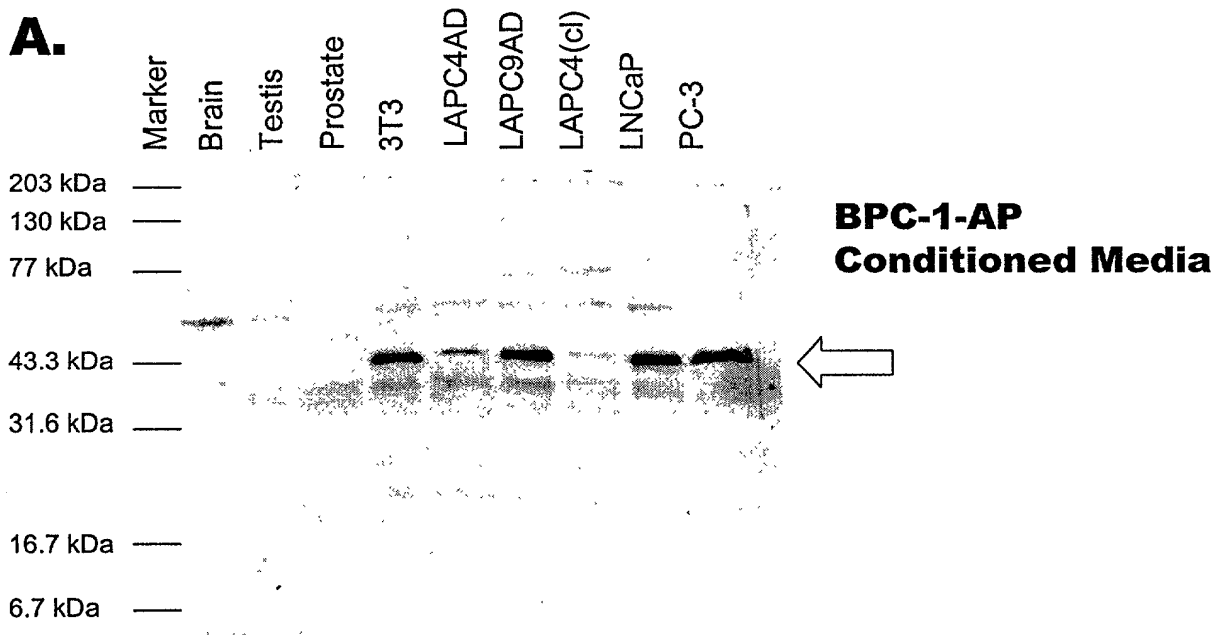




FIG. 15



## DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

BPC-1: A SECRETED BRAIN-SPECIFIC PROTEIN EXPRESSED AND SECRETED BY  
PROSTATE AND BLADDER CANCER CELLS

the specification of which

☒ was filed on August 10, 1999 as United States Application Number 09/374,135

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in and in accordance with the provisions of Title 37 of the Code of Federal Regulations, Section 1.56.

I hereby claim the benefit of under Title 35 of the United States Code, Section 119(e) of any United States provisional application(s) listed below.

Application Number

Filing Date

60/095,982

August 10, 1998

I hereby appoint:

Kenneth K. Sharples

Reg. No. 35,355

as my attorney(s) and/or patent agent(s), with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office in connection therewith.

I further direct that all correspondence concerning this application be directed to:

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Law Office of Kenneth K. Sharples  
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Point Reyes Station, CA 94956

Tel. 415-663-0323  
Fax 415-663-0324

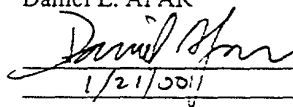
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Signature:

Date:

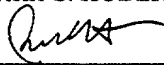
  
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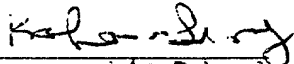
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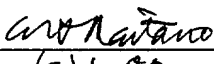
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